

# PATENT ABSTRACTS OF JAPAN

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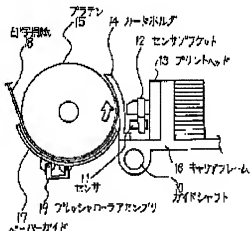
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(54) DETECTING METHOD FOR PRINTING PAPER AND SETTING METHOD FOR FIRST PRINTING POSITION

(57)Abstract:

**PURPOSE:** To directly decide the printing position on printing paper and to enhance of precision of a first printing position on the paper by providing a paper detection sensor to a carrier unit frame and detecting printing paper by transfer of the carrier frame unit.

**CONSTITUTION:** An optical reflection type sensor 11 for detecting paper is provided in the vicinity of a printing head 13 on a carrier frame 16 which performs reciprocating actuation parallel to a platen 15. The sensor 11 detects the tip and the rear end of printing paper 18 carried in the rotation direction of the platen 15. Thereby setting of a first printing row and detection of finish of paper are performed. Moreover the sensor 11 detects both ends in the width direction of printing paper 18 in accordance with the reciprocating actuation of the carrier frame 16. Thereby setting of the first printing row and detection of width size of paper are performed. Thereby the first printing position on printing paper can be directly set and the positional precision is enhanced. Null printing on the platen is prevented by detection of width size of paper. Further printing is enabled to the lower end of paper by detection of finish of paper.



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CLAIMS

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[Claim(s)]

[Claim 1]In a dot serial printer, a paper detection sensor of a light reflex form is formed near the print head on a platen and a carrier frame which performs reciprocation operation to parallel, When this paper detection sensor detects a tip and the back end of a print form conveyed in a hand of cut of said platen, while performing setting out of the first printing line, and end detection of a paper, A detecting method of a print form and a setting method of the first print position performing setting out and paper width size detection of the first printing sequence when said paper detection sensor detects both ends of the cross direction of said print form in connection with reciprocation operation of said carrier frame.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application]Especially this invention relates to the detecting method of a print form, and the setting method of the first print position about a dot serial printer.

[0002]

[Description of the Prior Art]In particular in the conventional dot serial printer, it had not detected about paper width size among the sizes of a print form. About detection of the length direction, as shown in drawing 3, learn the tip of the print form 24 from the paper guide 27, and it is inserted, The print form 24 was fed with \*\*\*\*\*, the platen 25, and the feed roller assembly 26 to the roller part of the feed roller assembly 26, and the first print position (especially the first printing line) to the paper was determined.

[0003]The leaf piece 22 included in the paper end sensor 21 moves to the platen 25 side, when the print form 24 is exhausted, and the paper end sensor 21 detects back end detection of a print form. This leaf piece 22 has received power which is always pushed on the platen 25 side from the contact-surface flat spring of the paper end sensor 21.

[0004]About setting out of the first print position (especially the first printing sequence) of a print form, Like drawing 4, the home position sensor 32 was being fixed to the frame units 31, the carrier frame 29 which moves reciprocally to this home position sensor 32 contacted, the sensor has detected (or non-contact), and the first printing sequence was determined.

[0005]

[Problem(s) to be Solved by the Invention]In the detecting method of the conventional print form mentioned above, about the difference in the size of a paper. Since it had not detected in particular about the width size of the paper, depending on the inputted command, \*\*\*\*\* may be performed to a platen, and the crack took lessons from the platen, and also the problem of becoming easy to generate the obstacle of a print head was.

[0006]About the first printing line positioning to a paper. A paper end sensor reads that a feed roller assembly has a paper in a paper at every \*\*\*\*\* and this time, In order that only the amount of angles specified beforehand may operate and a platen may set up from the point, depending on the setting method of a paper. The paper slipped at the time of inhalation when sending a paper by the feed roller assembly and a platen, and there was a problem that the first printing line position changed in proportion to the slip amount.

[0007]In the deciding method of the first printing sequence over the conventional print form. Since the user was determined by the position of the frame units and the home position sensor which have been actually attached into the covering to setting a print form according to the mark in outside covering, etc., dispersion in the first printing sequence over the print form between each device had generated him. It is the cause of generating of the gap from the designation location of the first printing sequence also about the indefinite way a user doubles with a mark, and there was a problem that an exact determination of the first printing aisle location of a print form was difficult.

[0008]

[Means for Solving the Problem]A detecting method of a print form of this invention, and a setting method of the first print position, In a dot serial printer, a paper detection sensor of a light reflex form is formed near the print

head on a platen and a carrier frame which performs reciprocation operation to parallel, When this paper detection sensor detects a tip and the back end of a print form conveyed in a hand of cut of said platen, while performing setting out of the first printing line, and end detection of a paper, When said paper detection sensor detects both ends of the cross direction of said print form in connection with reciprocation operation of said carrier frame, setting out and paper width size detection of the first printing sequence are performed.

[0009]

[Example]Next, this invention is explained with reference to drawings.

[0010]The side view and drawing 2 in which the mechanism of a dot serial printer [ in / in drawing 1 / one example of this invention ] is shown are the top view.

[0011][ near the print head 13 on the carrier frame 16 which is guided at the guide shaft 10 fixed in parallel with the platen 15, and performs reciprocation operation right and left ], this example has the sensor 11 of a light reflex form which is attached to the sensor bracket 12 and performs form detection, and is constituted.

[0012]The print form 18 to the contact portion of the pressure-roller assembly 19 and the platen 15 along the paper guide 17 top Every \*\*\*\*\*. If paper feeding is ordered from an operator panel (not shown), the platen 15 will rotate and the print form 18 will be carried forward to an arrow direction by the pressure-roller assembly 19 and the platen 15. The sensor 11 perceives that this print form 18 is learned from the paper guide 17, and is carried forward further, Then, after only the angle as which the platen 15 is specified rotates, since delivery of the print form 18 is stopped, the platen 15 suspends rotation, and the first printing line position of the print form 18 is determined. Then, the carrier frame 16 operates the guide shaft 10 top, and detects the boundary of the platen 15 and the print form 18 by the sensor 11, and it reads about the cross direction of the print form 18.

[0013]An example which has read the size of the cross direction of this print form 18 is shown in drawing 2, and the boundary of the arrow parts A and B is perceived by the sensor 11 in order (right-hand side carrier frame 16). Then, the carrier frame 16 moves the guide shaft 10 top to the left lateral, the arrow part A position of the end of the print form 18 is perceived again, only the quantity which setting out of the first printing sequence is made moves toward the B section from the A section of the end of the print form 18, and the first printing aisle location is determined. To the black of the platen 15, white-collar worker (H.P.) 15a shown in drawing 2 is the portion which gave white, and the carrier frame 16 moves immediately after turning on a printer, and it is temporarily fixed to the position of the carrier frame 16a. This is a thing for specifying a temporary home position (H.P.) position.

[0014]

[Effect of the Invention]As explained above, it becomes possible [ this invention ], since this invention forms a paper detection sensor in a carrier frame unit and detects a print form by movement of a carrier frame unit to determine the print position to a print form directly, and it has the effect that the accuracy of the first print position to a paper improves. Since it became possible to also read the width size of a print form, it has the effect that no-load striking \*\*\*\*\* to the platen of a print head is lost. Although it is printing, the paper end sensor has perceived that the lower end of a print form approaches and there was a printable part of a paper conventionally by having formed the paper detection sensor in the place near a print head, operation was suspended temporarily, but. In this invention, it has the effect of becoming possible to print without stopping to a paper lower end.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]It is a side view showing the lineblock diagram of the dot serial printer in one example of this invention.

[Drawing 2]It is a top view of drawing 1.

[Drawing 3]It is a top view showing an example of the conventional composition.

[Drawing 4]It is a top view of drawing 3.

[Description of Notations]

- 10 and 30 Guide shaft
- 11 Sensor
- 12 and 23 Sensor bracket
- 13 and 28 Print head
- 14 and 20 Card holder
- 15 and 25 Platen
- 16 and 29 Carrier frame
- 17 and 27 Paper guide
- 18 and 24 Print form
- 19 Pressure-roller assembly
- 21 Paper end sensor
- 22 Leaf piece
- 26 Feed roller assembly
- 31 Frame units
- 32 Home position sensor

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